



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,266	09/27/2004	Heikki Heikkila	18276	5317
7590	09/14/2006			
Leopold Presser Scully Scott Murphy & Presser 400 Garden City Plaza Garden City, NY 11530				
			EXAMINER THERKORN, ERNEST G	
			ART UNIT 1723	PAPER NUMBER

DATE MAILED: 09/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/509,266

Applicant(s)

HEIKKILA ET AL.

Examiner

Ernest G. Therkorn

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18, 20-22 and 24-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18, 20-22, and 24-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. "preferably" renders the claim indefinite.

Claims 1, 2, 4, 12-18, 24, and 29 are rejected under 35 U.S.C. 102(B) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Heikkila (U.S. Patent No. 6,146,856). The claims are considered to read on Heikkila (U.S. Patent No. 6,146,856). However, if a difference exists between the claims and Heikkila (U.S. Patent No. 6,146,856), it would reside in optimizing the steps of Heikkila (U.S. Patent No. 6,146,856). It would have been obvious to optimize the steps of Heikkila (U.S. Patent No. 6,146,856) to enhance separation.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heikkila (U.S. Patent No. 6,146,856) as applied to claims 1, 2, 4, 12-18, 24, and 29 above, and further in view of either Schoenrock (U.S. Patent No. 3,982,956) or Tanikawa (U.S. Patent No. 6,224,683). At best, the claim differs from Heikkila (U.S. Patent No. 6,146,856) in reciting use of a weakly acid cation exchange resin. Schoenrock (U.S. Patent No. 3,982,956) (column 1, lines 47-56 and column 2, line 65-column 3, line 20) discloses that use of a weak acid cation exchange resin prior to a weak base anion exchange resin removes undesirable cations. Tanikawa (U.S. Patent No. 6,224,683) (column 1, lines 46-51) discloses a weak acid cation exchange resin aids in softening and demineralization. It would have been obvious to use a weak acid cation exchange resin in Heikkila (U.S. Patent No. 6,146,856) either because Schoenrock (U.S. Patent No. 3,982,956) (column 1, lines 47-56 and column 2, line 65-column 3, line 20)

Art Unit: 1723

discloses that use of a weak acid cation exchange resin prior to a weak base anion exchange resin removes undesirable cations or because Tanikawa (U.S. Patent No. 6,224,683) (column 1, lines 46-51) discloses a weak acid cation exchange resin aids in softening and demineralization.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heikkila (U.S. Patent No. 6,146,856) as applied to claims 1, 2, 4, 12-18, 24, and 29 above, and further in view of Fries (U.S. Patent No. 4,718,946). At best, the claim differs from Heikkila (U.S. Patent No. 6,146,856) in reciting the weakly basic anion exchange resin is an acrylic-based resin. Fries (U.S. Patent No. 4,718,946) (column 1, line 67-column 2, line 12) discloses that use of acrylic in a weakly basic anion exchange resin reduces haze in treating sugar solutions. It would have been obvious to use acrylic in Heikkila (U.S. Patent No. 6,146,856) because Fries (U.S. Patent No. 4,718,946) (column 1, line 67-column 2, line 12) discloses that use of acrylic in a weakly basic anion exchange resin reduces haze in treating sugar solutions.

Claims 6-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heikkila (U.S. Patent No. 6,146,856) as applied to claims 1, 2, 4, 12-18, 24, and 29 above, and further in view of either Haag (U.S. Patent No. 4,145,486) or Katzakian (U.S. Patent No. 5,863,438). At best, the claims differ from Heikkila (U.S. Patent No. 6,146,856) in reciting use of styrene crosslinked with divinylbenzene. Katzakian (U.S. Patent No. 5,863,438) (column 6, line 66-column 7, line 14) discloses styrene-divinylbenzene chlormethylates treated with primary or secondary amines are improved weakly basic anion exchange resins. Haag (U.S. Patent No. 4,145,486) (column 5,

Art Unit: 1723

lines 32-43) discloses styrene-divinylbenzene is a desired resin with which to make a weak base anion exchange resin. It would have been obvious to use styrene-divinylbenzene chlormethylates treated with primary or secondary amines in Heikkila (U.S. Patent No. 6,146,856) either because Katzakian (U.S. Patent No. 5,863,438) (column 6, line 66-column 7, line 14) discloses styrene-divinylbenzene chlormethylates treated with primary or secondary amines are improved weakly basic anion exchange resins or because Haag (U.S. Patent No. 4,145,486) (column 5, lines 32-43) discloses styrene-divinylbenzene is a desired resin with which to make a weak base anion exchange resin.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heikkila (U.S. Patent No. 6,146,856) as applied to claims 1, 2, 4, 12-18, 24, and 29 above, and further in view of Pannekeet (U.S. Patent No. 4,051,221). At best, the claim differs from Heikkila (U.S. Patent No. 6,146,856) in reciting use of isoprene. Pannekeet (U.S. Patent No. 4,051,221) (column 2, lines 3-39) discloses that isoprene is a known monomer for crosslinking weakly basic anion exchangers. It would have been obvious to use isoprene in Heikkila (U.S. Patent No. 6,146,856) because Pannekeet (U.S. Patent No. 4,051,221) (column 2, lines 3-39) discloses that isoprene is a known monomer for crosslinking weakly basic anion exchangers.

Claims 20-22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heikkila (U.S. Patent No. 6,146,856) as applied to claims 1, 2, 4, 12-18, 24, and 29 above, and further in view of Heikkila (U.S. Patent No. 5,637,225). At best, the claims differ from Heikkila (U.S. Patent No. 6,146,856) in reciting separating pentose, hexose,

Art Unit: 1723

xylitol, and rhamnose. Heikkila (U.S. Patent No. 5,637,225) (column 2, lines 1-16 and Table 1) discloses pentose, hexose, xylitol, and rhamnose are desirable products to recover. It would have been obvious to recover pentose, hexose, xylitol, and rhamnose in Heikkila (U.S. Patent No. 6,146,856) because Heikkila (U.S. Patent No. 5,637,225) (column 2, lines 1-16) discloses pentose, hexose, xylitol, and rhamnose are desirable products to recover.

Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heikkila (U.S. Patent No. 6,146,856) as applied to claims 1, 2, 4, 12-18, 24, and 29 above, and further in view of Heikkila (U.S. Patent No. 5,730,877). At best, the claims differ from Heikkila (U.S. Patent No. 6,146,856) in reciting separating maltose, inositol, and glycerol. Heikkila (U.S. Patent No. 5,730,877) (column 4, lines 37-49 and column 12, line 66-column 13, line 3) discloses that maltose, inositol, and glycerol are desirable products to recover. It would have been obvious to recover maltose, inositol, and glycerol in Heikkila (U.S. Patent No. 6,146,856) because Heikkila (U.S. Patent No. 5,730,877) (column 4, lines 37-49 and column 12, line 66-column 13, line 3) discloses that maltose, inositol, and glycerol are desirable products to recover.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heikkila (U.S. Patent No. 6,146,856) as applied to claims 1, 2, 4, 12-18, 24, and 29 above, and further in view of Hyoky (U.S. Patent No. 5,795,398). At best, the claims differ from Heikkila (U.S. Patent No. 6,146,856) in reciting separating inositol. Hyoky (U.S. Patent No. 5,795,398) (column 1, lines 5-20) discloses that inositol is a desirable product to recover. It would have been obvious to recover inositol because Hyoky (U.S. Patent

Art Unit: 1723

No. 5,795,398) (column 1, lines 5-20) discloses that inositol is a desirable product to recover.

Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heikkila (U.S. Patent No. 6,146,856) as applied to claims 1, 2, 4, 12-18, 24, and 29 above, and further in view of Heikkila (U.S. Patent No. 5,730,877). At best, the claims differ from Heikkila (U.S. Patent No. 6,146,856) in reciting the use of simulated moving beds. Heikkila (U.S. Patent No. 5,730,877) (column 2, lines 19-25) discloses use of a continuous or a sequential simulated moving bed enables performance several times higher than a batch process. It would have been obvious to use either a continuous or a sequential simulated moving bed in Heikkila (U.S. Patent No. 6,146,856) because Heikkila (U.S. Patent No. 5,730,877) (column 2, lines 19-25) discloses use of a continuous or sequential simulated moving bed enables performance several times higher than a batch process.

The remarks have been considered but are not deemed pertinent in view of the new grounds of rejection necessitated by applicant's amendment.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

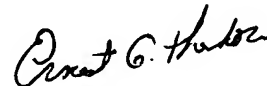
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 1723

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to E. Therkorn at telephone number (571) 272-1149. The official fax number is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Ernest G. Therkorn**  
**Primary Examiner**  
**Art Unit 1723**

EGT  
September 12, 2006